

**United Kingdom**, pharmacist independent prescribers can prescribe any drugs within their competence. Pharmacists can also supply prescription-only drugs using Patient Group Directions for specific conditions. In **Canada**, the province of Alberta has the broadest scope, as pharmacists with additional authorization may pre- scribe autonomously any prescription-only drug. The rest of the provinces permit prescribing for defined conditions. Manitoba is the only province not allowing prescribing for prescription-only drugs. In the United States: In **Idaho**, **Montana**, and **Colorado** pharmacists can autonomously prescribe for self-limiting and minor conditions, and already diagnosed conditions. It also has State- specific protocols allowing pharmacists to prescribe for certain conditions (e.g., California, Oregon). **Australia**: Five states have limited prescribing for urinary tract infections and contraception renewals, with pilot programs for expanded authority in some regions. **Poland** allows autonomous prescribing for the pharmacist himself (pro-auctore) and family members and members in cohabitation (pro-familiale). **Switzerland** has a set of conditions pharmacists can prescribe for including drugs reclassified as prescription-only drugs. In **Denmark** pharmacists can renew prescriptions for certain conditions. In **France** pharmacists can initiate prescriptions for urinary tract infections and bacterial tonsillitis. **Conclusion**: United Kingdom, Canada (Alberta), United States (Colorado, Montana, Idaho), and Poland (pro-auctore and pro-familiale) have the standard of care model. Government protocols are used in the rest of Canada, United States, Australia, Switzerland, Denmark, and France.

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#### Developing Outcome-Based Performance Indicators for Professional Pharmacy Services: A Mixed-Methods Approach

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**Background**: Professional pharmacy services' outcomes performance measurement has relied on output-based indicators rather than on outcomes.(1) While these metrics are easier to measure and track, they do not directly capture the impact of these services on patient health outcomes. This gap has been noted in the literature, emphasizing the need for a shift towards health outcome-based indicators that more accurately reflect the value and effectiveness of professional pharmacy services. **Purpose**: To define relevant health outcomes and performance indicators to assess professional pharmacy services, through a Design Science (DSRM) approach.

**Study design**: A mixed-methods study design will explore and validate health outcomes and indicators that best suit professional services provided in Portuguese pharmacies. This will be done through semi-structured interviews with pharmacy owners and professional service managers, guided by the Consolidated Framework for Implementation Research 2.0 CFIR).(2) The quantitative component complements this by employing a self-administered questionnaire based on the CFIR 14-Item pCAT model.(3) This method ensures that the defined performance indicators are grounded in real- world practice and perspectives.

**Findings**: Targeting active community pharmacists, constructs such as acceptability, feasibility, and impact, which are critical for determining the practical applicability of the identified indicators, will be assessed. The CFIR framework enables a systematic exploration of key constructs that influence the design and implementation processes, facilitating the identification of health outcome indicators, the services they pertain to, and the characteristics, necessity, and advantages of a performance dashboard.

**Conclusion**: The transition from output-based to health outcome-based performance indicators in professional pharmacy services is crucial for accurately evaluating their impact on patient health. Leveraging the Consolidated Framework for Implementation Research (CFIR) ensures the creation of a user-centred solution grounded in real-world insights. This approach not only bridges existing gaps but also tailors the solution to the needs and challenges of pharmacists, ultimately enhancing the effectiveness of pharmacy service evaluation.

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#### Evaluating Large Language Models in Self-Care: Accuracy of Medicine and Supplement Guidance for Patients

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**Background**: Recent developments in artificial intelligence, particularly large language models, are exerting a profound influence on the medical and pharmaceutical sciences. These tools, once limited to specialized uses in diagnostics and data discovery, are now easily accessible to the general public.

**Purpose**: This study aimed to critically evaluate the performance of large language models in answering patients' self-care questions about medications and supplements.

**Method**: A comprehensive analysis was conducted to evaluate the performance of six leading language models across four key dimensions: correctness, language independence, context sensitivity, and reproducibility. This evaluation was facilitated by a newly developed reference set of questions and a scoring matrix.

**Findings**: The large language models investigated were generally capable of accurately answering most self-care questions and providing relevant health information. However, there was substantial variability in the responses, including potentially unsafe advice, influenced by language, question structure, user context, and time. GPT-4.0 scored the highest on average, while GPT-3.5, Gemini, and Gemini Advanced had varied scores. Responses were sensitive to context and language. In a 60- day experiment involving repeated queries, Perplexity exhibited the greatest variability in response generation, indicating the lowest level of temporal consistency.

**Conclusion**: The high-quality outputs generated by large language models indicate their potential utility in future self-care applications. The newly created benchmark can facilitate further validation and guide the establishment of strict safeguards to mitigate the significant risk of misinformation. Prioritizing patient safety necessitates the establishment of stringent safeguards to mitigate potential risks and optimize the benefits derived from this innovative technology.

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#### First results of a randomized controlled trial evaluating an app- based adherence pharmacy service for ambulatory patients with short-term antibiotic therapy (Re SMAPP Study)

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**Background**: Antibiotics are among the most crucial medicines of our modern age. In Switzerland in 2022, 26% of all prescriptions included co-amoxicillin making it the most widely prescribed antibiotic in the outpatient setting. Forgetfulness is one major challenge to adherence in antibiotic therapy, often resulting in recurring infections and increasing antibiotic resistances. Therefore, re- minding patients to take their antibiotic and educating them about the importance of their intake behavior is a promising approach to improve medication adherence.

**Purpose**: To evaluate the effectiveness of a two-level intervention using an app-based reminder system and motivational/educational text messaging to improve adherence to short-term antibiotic therapy with co-amoxicillin.

**Methods**: This monocentric, cluster-randomized, double-blind, two-arm study is